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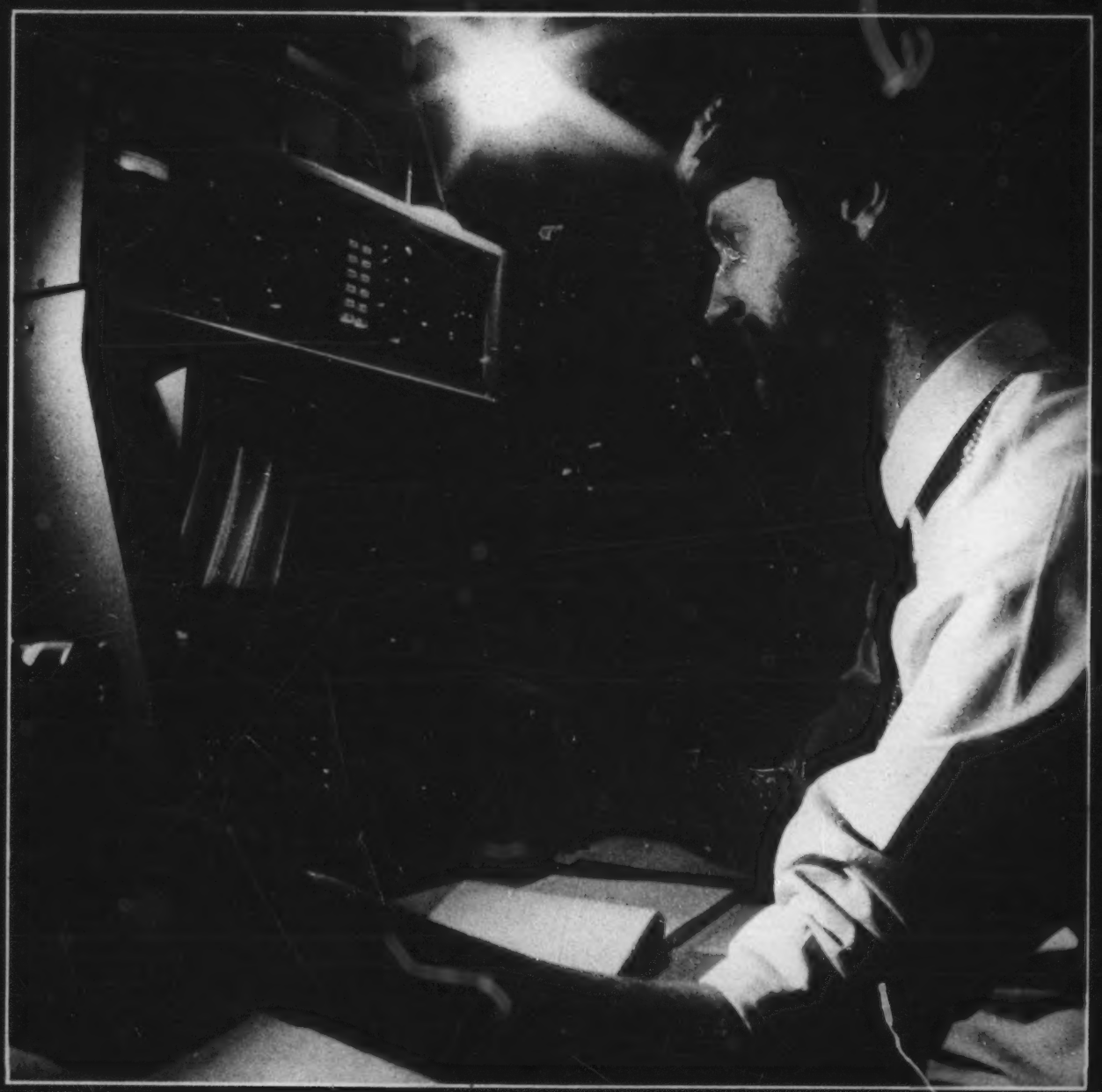

FOOD ENGINEERING

COVER STORY

Countries on each side of the Atlantic Ocean sometimes seem more aware of the trends coming to them from across the ocean rather than those right under their noses. Photo courtesy of Unilever.

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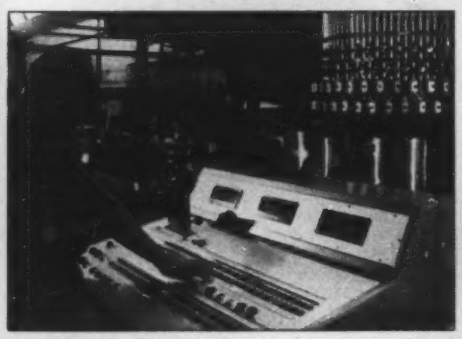

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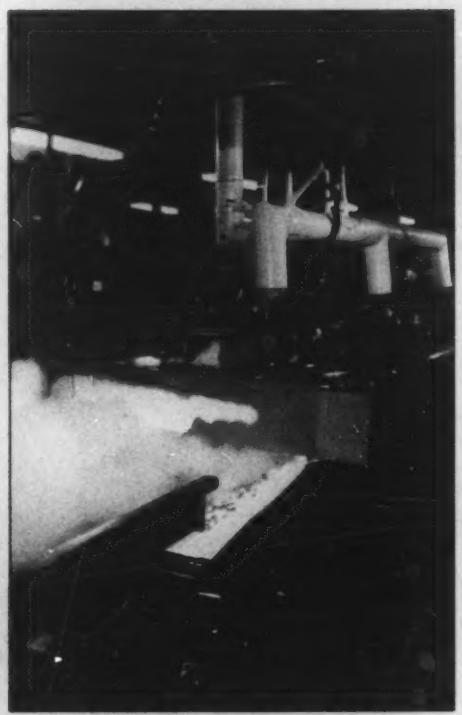

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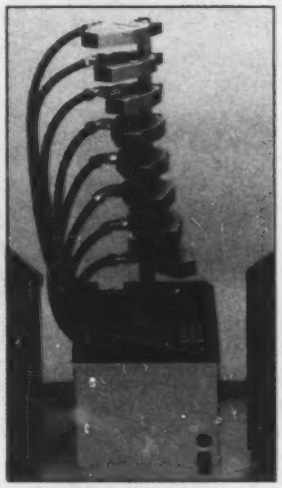

Special Emphasis

LABELING, CODING & MARKING

Container identification has never been more important than it is today. The increase in point of purchase buying decisions have made labeling an integral part of any marketing campaign.

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Cashing in on a French food industry poised for change

FOOD PROCESSING MACHINERY
(Millions of French francs/U.S. dollars)

	1984	1985	1986	1987	Est. 1988	Est. 1989	Proj. 1990
Imports into France	3 86 396	3743 416	3990 578	4274 712	4565 650	4876 813	5046 841
French production	5857 647	5772 641	5982 867	6278 1046	6402 1067	6686 1114	6887 1147
Exports	3107 355	3138 348	3289 476	3301 550	3334 556	3367 561	3700 617
Net	6016 688	6377 709	6683 969	7251 1208	7633 1161	8195 1366	8233 1371

France is not just a country beginning significant changes in its food industry because of both national and international opportunities; it is also a country already committed to importing and exporting equipment as ways to stoke its economy.

Last month we reported on the work being done to realize a U.S. exhibitor pavilion at the GIA Show in Paris (November 4-9), which could help American equipment manufacturers take advantage of both the French market in particular and the European market in general.

Recently, we received the latest assessment of the French food industry from the U.S. embassy in Paris, and we thought it might be helpful for putting potential U.S. manufacturer participation in perspective.

For one thing, the French market is changing and the philosophy of going to market will have to change with it. Two major things to consider:

- 1. "The industry," notes the embassy, "will undergo a reorganization," with greater concentration of and consolidation into larger companies. "Up to the present time, too many small companies have been too scattered geographically for France to cope with international competition. Vertical and horizontal integration will be maximized before 1992." France surely poses any number of opportunities for this kind of consolidation. Available estimates are that better than 80% of the French food manufacturing facilities employ fewer than 100 people.
- 2. What's so special about 1992? That is the target date for the creation of the European Economic Community (EEC) single market and the elimination of customs tariffs. This means: a) France will have open to it "a new economic and business market of 320 million customers," and b) France's domestic market will itself be more open to competition. The former at least may be a real boost, because even though France is the number one food exporter in the world, international sales have been slumping. But it will also mean a reindustrialization of French food manufacturing that will demand "increased investment to deal with international demand, and competition" from other countries, notes the embassy. Because "the French food processing industry has been hampered up until now by the aging of its equipment."

But it is not just the changes that will come in the EEC that will stretch the capabilities and imaginations of French food manufacturers. On the one hand, consumption in France has remained relatively flat, and immediate future predictions don't see major percentage improvements. On the other hand, this leaves a fertile field for new product development, and the stimulation of the market by launching new products. In fact, according to some experts, 60% of the food products in France that will be consumed in the year 2000 have not been launched yet. Which is why greater importance than ever before is being put on R&D to grow businesses.

Also, as *Food Engineering International* magazine has noted, "French consumers in general have many of the same demands as their counterparts around the world. More women are working, shopping is done less frequently, and the large supermarket—the hypermarket—is undergoing tremendous growth." Some results: "Experts predict the French food sector will be characterized by an increasing number of prepared and semi-prepared foods."

These are all reasons why, even though the U.S. embassy indicates that "French demand for food processing equipment has been erratic,... [equipment] import levels were up again in 1986 and 1987, and are likely to speed up" in 1989. In fact, the embassy estimates that the real growth rate for imported equipment will be 3.5% per year through at least 1990 (see accompanying chart).

The embassy also predicts that, like U.S. industry:

- French food processing is going to need to develop more transfer technology than ever before (transfers will be "booming" is the way the embassy describes it), as French food manufacturers learn from areas like the cosmetics and pharmaceutical industries how to best process and package foods for future markets where

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microbiological and shelf-stability issues will become more and more pressing.

- There will also be a new push toward automation, process control systems, and even robotization, "requiring cooperation with the electronic engineering industries."
- Flexible and rigid plastic packaging and packaging systems are expected to gain "a lion's share" of the market against metal. Indeed, use of metal has been in eclipse among food manufacturers for several years, and the only metal packaging segment showing growth has been aerosol cans. Over the last 20 years, plastic has come to amount to 30 percent of total packaging.
- There will be a major demand for individual-portion packages.

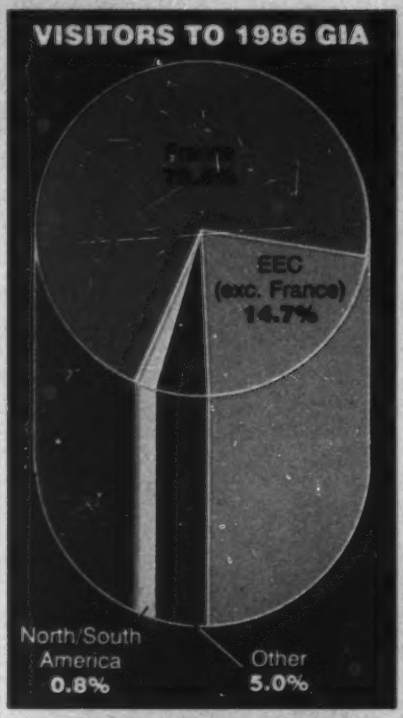
As far as the U.S. equipment supplier doing business in France is concerned, the embassy thinks that one of the best niches for U.S. penetration will be automation and process control (the embassy notes that "the demand for electronic process control systems will be widely increasing in coming years"). There will also be a large market for whatever types of turnkey operations the U.S might be able to supply.

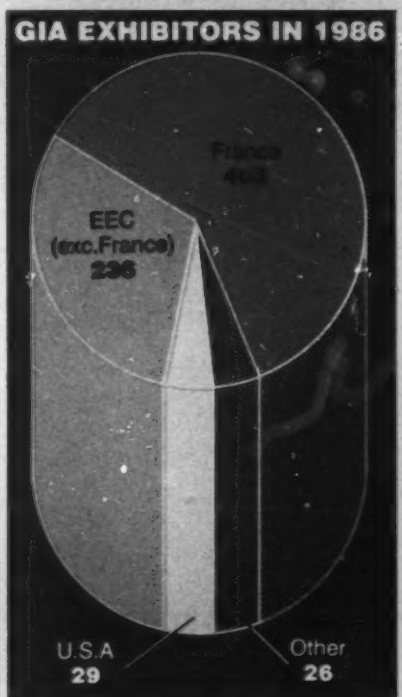
In general, the main competitors to U.S. suppliers are those German and Italian firms that specialize in sophisticated automation equipment. Specific European competition includes: Meat machinery from West Germany; fish processing and milk processing equipment from Scandinavia; canned fruit and tomato equipment from Italy and Spain; and candy equipment from Great Britain.

The deciding factors in getting U.S. equipment into the French food industry will first and foremost be being able to offer new products and new technologies, says the embassy, but availability of maintenance and other after-sales services will also play a large part.

Pricing will not be a big factor, unless exchange rates take a turn for the worse (that is, from the French point of view).

In short, France is worth at least a second look as a target of opportunity for U.S. investors.





With certification of a turnkey pavilion in place, there will be a greater chance for U.S. manufacturers to be more of a presence than in 1986 at what is *the* major European food manufacturing show. There will also be an excellent chance for visitors to see not just what France has to offer, but the best of Europe as a whole.

Circle 12 on Inquiry Card

Circle 13 or see FEM, p. 247→

Home: where the heart is—and more takeout food than ever before

New figures on consumer eating and nutrition habits from The NPD Group (Park Ridge, IL) were presented by NPD vice president Harry Balzer to the plenary session at Pack Alimentaire this past March in San Francisco. They were part of a report entitled "Eating Patterns in America," and some of the information may cause food marketers to more clearly focus their thinking, and even to reappraise what some have felt to be virtual truisms about the nature of the markets they serve.

The NPD information comes from two dairy panels, one of 2,000 respondents who provide in-home consumption data to NPD's National Eating Trends, and 12,800 respondents that feed into NPD's CREST project covering away-from-home eating patterns.

Right off the bat, Balzer noted one significant development: "Families grew as a share of the U.S. population for only the second time in two decades." By the year 2000, who will be the fastest-growing population segments? "Persons over 75, older affluent households, and two-parent families with children," Balzer said.

To show how these sorts of demographics might play a part in manufacturers' planning, he profiled restaurant take-home meals by using a segmentation analysis technique that NPD calls "lifecycle": designations like Affluent Singles, Working Parents, Single Parents, Affluent Empty Nesters, Single Active Elderly—12 categories altogether. Charting these to show take-home share of total restaurant meals or snacks for each group, the clear winners were those lifecycles that involved households with children, running anywhere from six to eight percent above the average for all groups. Balzer's data implies a couple of things. For one, the growth of families in the U.S. population mentioned before will have a good deal of meaning for the take-home subsegment of the restaurant market. For another thing, it will also have more of an impact on that market than will the increase in the elderly or in older affluent households, both of which might have been assumed to have been moving into a heavier take-home mode.

The NPD had also done a segmentation analysis to look at homemaker attitudes: "Does a household's eating behavior reflect the concerns of the homemaker?" There turned out to be five behavioral groups in this regard: Diet Conscientious, Sophisticates, Naturalists, Meat & Potatoes, and Kids Around. "Once the behavioral groups were identified .... four attitudinal groups were identified": Nutritionally Fit, Busy Urbanite, Conventional Tastes, Restrictive Dieters.

The largest behavioral group were those who were diet conscientious; the largest attitudinal group were those who were nutrition conscious.

No surprises—yet. But, Balzer demonstrated, "By crossing attitude and behavior, a four year trend showed nutritionally concerned households that ate conventionally were growing steadily—while nutritionally concerned households that ate nutritious/healthy food were not." (Looks like the old double standard between what you feed your head and what you feed your stomach.)

Far and away most main meals are still being prepared at home. We are, however, eating fewer breakfasts, according to Balzer; per capita use of restaurants is holding steady; and what

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Balzer describes as "America's love affair with the take-home meal grows without interruption—and almost exclusively at dinner."

All of these factors point in one way or another to the inclusion in everyone's lifestyle of the need for greater convenience. Again, no revelation there. But for a food manufacturer it is in the details that new insights for the future may be found. For example, consider the amount of advertising that has been put behind a brand name like "Stove Top Stuffing" to capitalize on the convenience of having good tasting stuffing that is not dependent on having a large bird or an oven to cook it in. Well, according to Balzer and NPD, the stove top, while it is still king of the hill among food preparation methods, is at the same time the fastest declining method of food preparation currently in use.

On the other hand, the redoubtable microwave, that everyone points to as the appliance of the future, is still very much just that—with the emphasis on *future*. Since 1983, in terms of use for preparing meals, it has only been able to catch up with the toaster oven, each holding about 14 percent share of use.

The good news, though, for companies staking a serious percentage of their hopes on microwave foods, is that the microwave has doubled its usage rate while every other means of meal preparation except the barbecue and the crock pot have declined—and even they have only held steady at one percent and one-half percent, respectively. [Ed. Note: *Food Engineering* confidently predicts no huge crock pot surge in the near future.]

Another detail: Marketers have been throwing frozen breakfast products—including waffle and bagel exotica—at us almost as fast as you can open the frozen food cases, and frozen entrees even faster. However, the NPD research shows that, according to Balzer, "usage of frozen forms of product has increased primarily at lunch" rather than at breakfast (-2 percent) or at dinner (only +1 percent).

Last but not least, Balzer led the audience through what Americans were

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telling NPD about food and beverage preferences generally.

The winners: "Carbonated soft drinks, pizza, and rice...for both in-home and restaurant meals. And ethnic dishes...are hot on the heels of pizza as significantly growing restaurant entrees over time."

The losers: " 'Side dish' salads have undergone a steady decline in popularity both at home and in restaurants since 1983. Cakes and pies have followed suit as well."

A trend perhaps to ponder: Low and lite. Pointed out Balzer, "The use of lite/low calorie products failed to grow from the previous year." (In writing our cover feature on low, light, and natural foods in February of this year, we noted the "paradox" that regardless of the reduced-calorie food available to U.S. consumers, "per-capita consumption of calories continues to rise.")

One final observation. We hear a great deal about the explosion of the chicken and fish industries. Detail from NPD: "The red meat sandwich reigns supreme as the most popular entree-oriented item both at home and in restaurants in the latest year of reporting."

The message—look past the broad trends. Find what is happening in the details, the nooks and crannies. These may be the markets yet to take shape.

Effort required on food safety issues

Food safety affects every segment of the American food industry and represents the most challenging public policy issue confronting the food industry today, warned Manley Molpus, American Meat Institute (AMI) president, in a speech to the National Meat Canners Association.

"The safety of the food supply is the central public issue facing the food industry today. To deal with it successfully, it is essential that every segment –producers, manufacturers, processors and retailers–work together to reassure consumers and, most importantly, work to make the best food safety system in the world even better."

AMI's Board of Directors recently approved a comprehensive meat safety program that includes research to reduce the incidence of Salmonella and Listeria and recommendations to strengthen the government's residue prevention program. AMI has also published a comprehensive meat safety booklet, "The U.S. Meat Supply; Your Safety Assured."

Molpus urged the food industry to support legislative and regulatory proposals. He pledged AMI would cooperate fully with all segments of the food chain to further improve the industry's ability to ensure an even safer food supply.

Increase in national recycling rate

The Glass Packaging Institute has announced support for a recommendation by the U.S. Environmental Protection Agency to reduce the solid waste stream and increase the national recycling rate by 25 percent over the next four years.

The glass container industry currently supports numerous activities to promote recycling in more than 20 states. "We believe comprehensive curbside recycling is the most effective means of reaching EPA's goal of a 25 percent national recycling rate."

Comprehensive curbside recycling requires consumers to sort wastes into separate containers that hold the same recyclable material. The separated trash is then collected at curbside by municipalities and transported to recycling facilities.

Lewis D. Andrews Jr., GPI president, cited New Jersey's mandatory recycling program as a model for other states to follow. The New Jersey law requires counties and municipalities to enforce ordinances mandating separation of leaves plus three other items on the state's "recyclables" list. New Jersey's goal is to reduce its solid waste stream by 25 percent in two years.

Kellogg launches awareness campaign

Kellogg is taking a high-visibility role in nutrition by launching a corporate campaign to educate the U.S. public on diet and good health. The yearlong program is aimed at lowering cholesterol levels and will include a major consumer print advertising campaign in leading national magazines.

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INGREDIENT BUYERS' SURVEY

MICROWAVES TAKE OVER

Using natural ingredients is still a big issue to ingredient buyers according to Food Engineering's annual survey, but the real impact of microwave ovens is just beginning to be felt.

While the use of natural ingredients still plays a major role for ingredient buyers according to *Food Engineering's* annual survey, the cry for improved ingredients for use in microwave products is being heard louder than ever before.

Microwave coating systems for meat, better breading systems, better browning systems, and flavors for popcorn (such as cheese, caramel, and butter that is in the popping bag, not sprinkled on) were mentioned again and again by over 350 food industry professionals who took part in the *Food Engineering* Executive Advisory Panel survey on ingredient buying trends.

These results are far from surprising since microwave ovens have invaded more than 70 percent of American homes, and this num-

JOYCE FASSL
Managing Editor

Product Development Influences By Industry

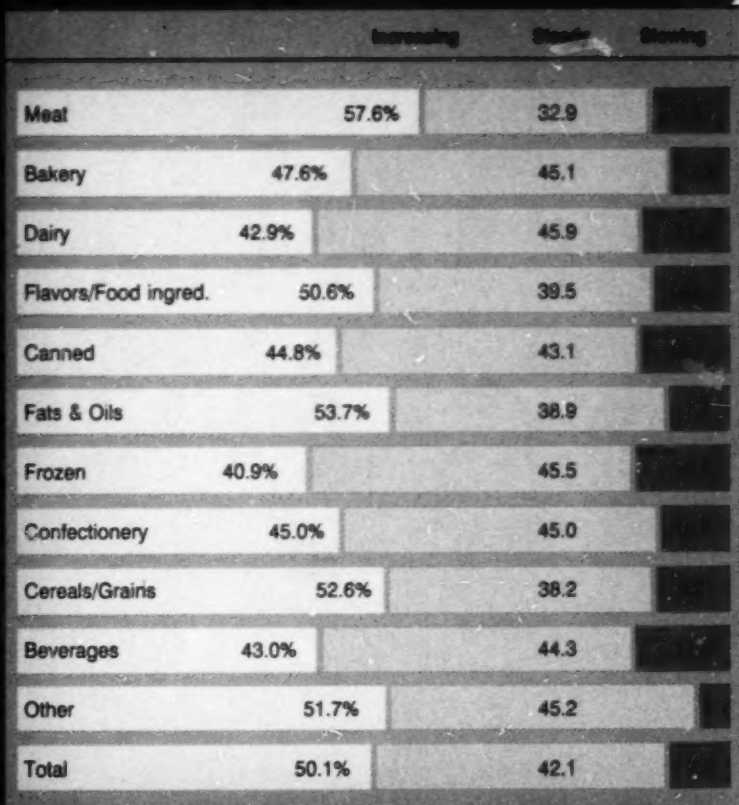
Food Engineering's Executive Advisory Panel rated the importance of major influences on ingredient and product development. The numbers in this chart represent the percentage of panel members that indicated these categories were a major factor in influencing their decisions.

	Total Panel	Meat	Bakery	Dairy	Flavors/ Food ing.	Canned	Fats & Oils	Frozen Foods	Confect- ionery	Cereals/ Grains	Bever- ages	Other
Using natural ingredients	54.6	48.2	53.7	42.9	58.0	53.4	44.4	47.7	50.0	46.1	62.0	54.0
Lessening/eliminating preservatives	34.9	32.9	32.9	21.4	32.1	36.2	33.3	29.5	30.0	30.3	45.6	35.6
Vitamin fortification	14.6	5.9	17.1	11.2	4.9	10.3	5.6	9.1	8.3	21.1	8.9	20.7
Mineral fortification (particularly calcium)	10.1	5.9	9.8	10.2	3.7	8.6	5.6	9.1	6.7	11.8	8.9	19.5
Low- and reduced-calorie foods	26.9	34.1	28.0	26.5	28.4	25.9	24.1	27.3	23.3	26.3	29.1	28.7
Reducing sodium content	31.6	38.8	32.9	28.5	37.0	32.8	31.5	29.5	36.7	35.5	27.8	29.9
Saturation level of fats	23.3	18.8	24.4	24.5	18.5	20.7	33.3	22.7	30.0	22.4	13.9	31.0
Reduced cholesterol content	18.2	20.0	23.2	21.4	14.8	22.4	31.5	25.0	23.3	15.8	6.3	19.5
Incorporating fiber	14.3	8.2	25.6	9.2	12.3	12.1	14.8	15.9	13.3	23.7	10.1	16.1

Source: Food Engineering's Ingredient Survey 1988

Pace of New Product Activity By Industry

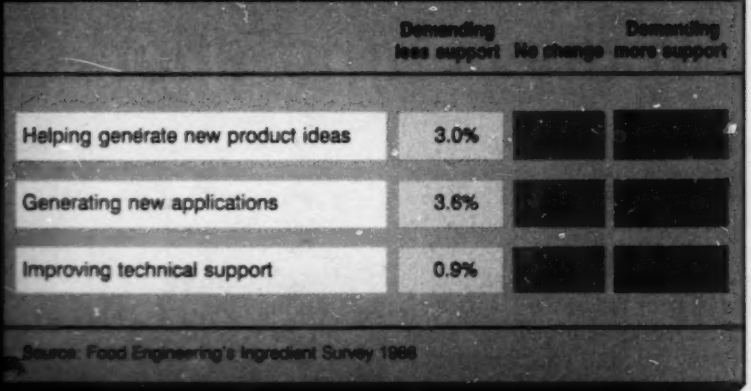
The panel was asked to rate the pace of new product activity in their companies compared to last year.



Source: Food Engineering's Ingredient Survey 1988

Demands on Ingredient Suppliers

The panel was asked to rate the changes, if any, of demands on ingredient suppliers in the three areas listed below.



Source: Food Engineering's Ingredient Survey 1988

ber is expected to increase in the years to come.

Nothing but blue skies

As part of the survey, the panel was asked to "blue sky" for us and tell us the kinds of ingredients or ingredient systems they would like to see that are currently not available. The two most-mentioned responses had to do with microwave ingredients, followed closely behind by the continued use of natural ingredients (which dominated last year's survey).

"An understanding of what is required of an ingredient to deliver performance in microwave ovens would be of benefit," said an R&D laboratory manager from California, "[because] microwave food development is highly empirical."

Another R&D worker, from Illinois, dreamed about flavors that bloom properly in the microwave both from the standpoint of kitchen odor and product flavor.

A vice president of product development from Georgia thought that much more emphasis is needed in flavor systems exclusively for microwaves. Why? Because, he claims, "in R&D, far more work than ever is being done on products which will only be microwaved or have a 90 percent chance of microwaving."

Other "blue sky" suggestions we found interesting included the call for "a flavor house that has lead times shorter than 6 weeks" from a packaging services manager in Wisconsin, and "more cooperation from Mother Nature," according to a chief engineer from Florida.

This year for the first time we asked the members of the panel which ingredient areas needed improvements in either quality or capability to produce not only microwave products, but plastic-packaged products, controlled atmosphere and vac-pac products, and aseptic products.

According to the panel, improvements in ingredients for microwave products were needed for cheese, natural flavors, modified starches, and seasonings and spices. On the other hand, respondents saw little need for improvement in areas such as mineral supplements, salt and phosphates as far as microwave applications were concerned.

For products packaged with plastic, the panel told us they would like to see improvements in antioxidants/preservatives, and natural flavors. At the bottom of the list: mineral supplements, phosphates and enzymes.

In the area of controlled atmosphere or vac-pac products, natural flavors and

INGREDIENT BUYERS' SURVEY

antioxidants/preservatives were the two areas where the panel asked most for improvements. Some of the other ingredient areas where the panel suggested improvements were needed included fats and oils, flavor enhancers and cheese for this product area.

And for aseptic products, the most interest was shown in improving emulsifiers and natural flavors. Some interest was also shown in artificial flavors, flavor enhancers and stabilizers.

No stopping natural

Using natural ingredients was a factor for greater than 90 percent of the panel when making ingredient and product development decisions.

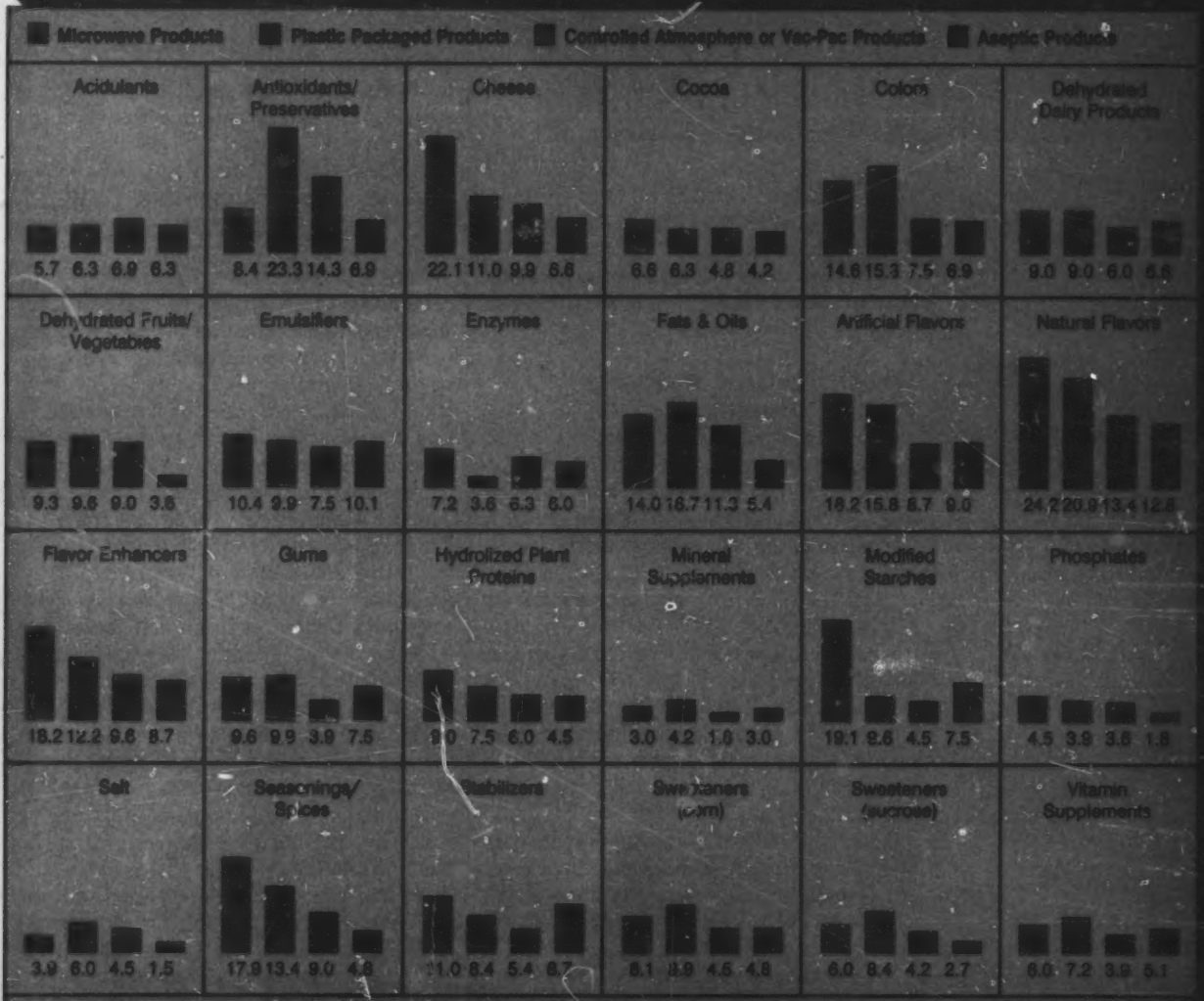
A senior laboratory technician from New Jersey summed up what most of the panel thought when he told *FE* that he would like to see "ingredients that are flavorable, nutritious and natural [natural meaning minimally processed]."

The panel told us they wanted natural meat and poultry flavors, natural antioxidants, natural preservatives for baked goods, heat stable natural colors and flavors, and natural emulsifiers.

Lessening and eliminating preservatives was a factor for 80 percent of the respondents. Next in line were low and reduced cal-

Ingredient Categories Needing Improvement In Quality or Capability

The panel was asked to indicate which ingredients needed improvements in either quality or capability to produce better products. The numbers indicate the percentage of respondents who saw a particular need for improvement in the areas listed below.



Movement Toward Use of One Supplier or a Favored Supplier

The panel was asked if their companies were moving towards the use of one supplier or a favored supplier for ingredients needs in the categories listed below.

	Not moving toward it	Moving toward it	Already using this practice
Flavors	32.8%		
Colors	31.9%		
Sweeteners	36.7%		
Fat & Oils	33.1%		
Gums/Thickeners/ Emulsifiers	32.2%		
Spices & Seasonings	28.7%		

Source: Food Engineering's Ingredient Survey 1988

orie foods and reducing sodium content, with both categories a factor to 74 percent of the ingredient buyers.

Saturation level of fats and reduced cholesterol content were a factor to approximately half of the panel.

New product activity on the increase

The pace of new product activity, while still increasing in 50 percent of our respondent companies, is increasing at a slower rate than last year's survey showed. In 1987, 60 percent of the respondents said new product activity was increasing at their companies. At the same time, new product activity is staying steady at 42 percent of the panel companies this year compared to 33 percent last year.

We also asked the panel how demands on ingredient suppliers have changed in relation to helping generate new product ideas, generating new applications and improving technical support.

Seventy percent of the survey respondents reported that they were demanding more and wanted improved technical support. To a somewhat lesser extent, 45 percent of the panel said they are demanding more support from ingredient suppliers for generating new applications, and 37 percent of the panel are demanding more support from their suppliers in helping to generate new product ideas.

Variance from spec

The question that sparked the biggest controversy on this year's survey was: Is your company willing to pay a premium for assurance of zero variance from spec in the ingredients your suppliers provide?

The responses were split almost down the middle. More than 55 percent of the panel said they would be willing to pay a premium for zero variance.

Of those people working with canned foods, 72 percent responded positively, followed closely by 63 percent of those who work in flavors and food ingredients. Of the respondents who said that they are willing to pay a premium, most said they would only pay for special situations, not for every ingredient.

A plant engineer from New York complained that even though his company asks for zero variance, "so far none of the ingredient suppliers, in spite of the premium paid, meet the spec." As a result his company is spending additional time to check all of the ingredients.

"Quality must be consistent," said a vineyard owner from Pennsylvania. "It is even more important with new technologies. Also, Proposition 65 forces close monitoring of all product components for compliance."

Many of the respondents who said they would not pay a premium for zero variance were angry and quite adamant about not paying a premium.

"A spec is a spec," cried an Arizona executive director. "If it cannot be met, it or the process must be changed. The idea of paying a premium to assure that a product meets a supplier's guaranteed spec is ludicrous."

A marketing director from Arizona said he could live with very small tolerances in ingredients just as regulators can live with very small tolerances in his companies' finished products. "I cannot see extras dollars for absolute zero," he added.

Many of the respondents told us that zero variance from spec was unobtainable. A packaging manager from Kansas put it bluntly—"Zero variance is a dream." A group leader from Illinois and a packaging R&D worker from Minnesota echoed the lament. While the group leader says he would be willing to pay the price, he also thinks he will never get zero variance. The R&D worker said that his company works with ingredient suppliers to arrive at a mutually acceptable spec, but added that "zero variance is unrealistic."